

REMARKS

Claims 1-10 are pending in the application. Claims 1, 3 and 4 have been amended and new claims 6-10 have been added. Favorable reconsideration of the application, as amended, is respectfully requested.

I. REJECTION OF CLAIMS UNDER 35 USC §103(a)

Claims 1-5 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Umabayashi (U.S. Published Patent Application No. 2002/0174930 A1) in view of Pisani (U.S. Patent No. 3,759,198).

As described in more detail below, it would not be obvious to one of skill in the art to modify Umabayashi in light of Pisani because doing so would change the principle operation of Umabayashi. Furthermore, Umabayashi and Pisani do not disclose all of the features of amended claims 1, 3 and 4, either alone or in combination with one another. Thus, even if combined, Umabayashi and Pisani would not render claims 1-5 obvious. Withdrawal of the rejection of claims 1-5 is respectfully requested.

A. The Teachings of Umabayashi and Pisani Are Not Sufficient to Render the Claims *Prima Facie* Obvious under MPEP 2143.01(VI).

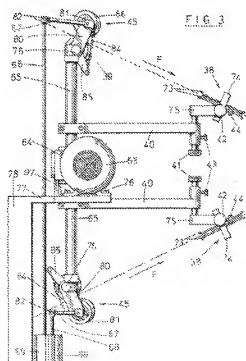
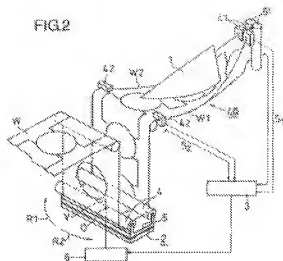
According to MPEP 2143.01(VI), "if a proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious." Modifying Umabayashi in light of Pisani would change the principle operation of Umabayashi. Therefore, the Office Action has failed to set forth a *prima facie* case of obviousness.

As shown in Figure 2 (below), Umabayashi discloses detecting the position of side edges of a web W1, W2 with sensors 41, 42 upstream and downstream of a folding section 40. Based on the detected position, a web guider 2 provided upstream of the folding section 40 controls the flowing direction of the web to vary the position of the web prior to the web being folded. It is therefore easy for the position of the web to

be varied. The web guider 2 is not located in the folding section 40, and therefore, as acknowledged in the Office Action, Umabayashi does not disclose the claimed correcting section in the folding section. Office Action, pg. 3.

The main invention of Umabayashi is a method and apparatus for using a web guider 2 to correct the positional relationship between a web (W) carried to a folding section 40 and a contact member 1. Modifying Umabayashi to eliminate or replace the web guider 2, as proposed in the Office Action, would result in a change to the principle invention and operation of Umabayashi, in contravention of MPEP 2143.01(VI).

Pisani discloses a machine for folding fabric with a triangular folding frame. As shown in Figure 3 (below) and described in col. 5, lines 54-67, the machine includes a device 45 for moving the edges of the fabric towards the folding frame. The device 45 includes a driving roller 39 and the roller 66 (collectively referred to as the "rollers 39, 66"). The axes of the driving roller 39 and the roller 66 are parallel to one another and form an acute angle \hat{a} (shown in Figure 2 from Pisani and reproduced below) with respect to the direction of the forward movement of the fabric edge. The rollers 39, 66 are selectively engaged/disengaged from the fabric edge when a sensor 38 detects that one of the edges of the fabric has moved



away from the folding frame. Pisani, col. 3, lines 54-68 and Figure 3.

According to the Examiner, it would have been obvious to utilize the device 45 of Pisani in Umabayashi. The device 45 (i.e., rollers 29, 66) of Pisani, however, serve the same purpose as the web guider 2 of Umabayashi. Namely, both the web guider 2 of Umabayashi and the rollers 39, 66 of Pisani are used to adjust the edges of the fabric web. Thus, combining the rollers 39, 66 of Pisani with Umabayashi would render the web guider 2 redundant or extraneous and thus change the principle invention of Umabayashi.

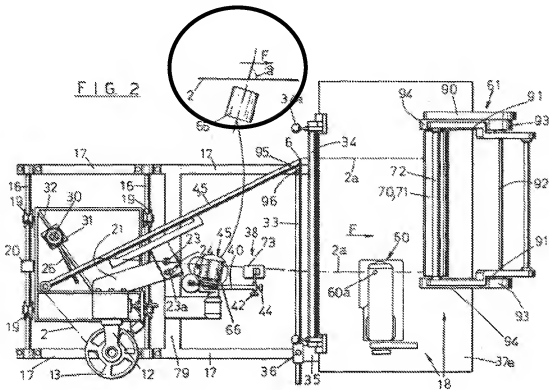
Accordingly, the teachings of the Umabayashi and Pisani are not sufficient to render the claims prima facie obvious under 2143.01(VI), as the combination would change the principle operation of Umabayashi. Withdrawal of the rejection of the claims under 35 U.S.C. § 103 is therefore respectfully requested.

B. The Combination of Umabayashi and Pisani Fails Render Amended Claims 1, 3 and 4 Obvious Under 35 U.S.C. § 103.

As amended, aspects of independent claims 1, 3 and 4 relate to a folding apparatus and method for producing a worn article from a web. The apparatus includes a contact section having at least one roller and a control section controlling at least one of the inclination angle or revolution speed of the roller while the roller is in contact with the web to bring the positional relationship of opposite side edges of a web closer to a predetermined positional relationship. As noted above and in the Office Action, Umabayashi does not disclose or suggest a correcting section in the folding section. Office Action, pg. 3. Further, Umabayashi and Pisani do not teach or suggest a folding section with a roller and controlling an inclination angle or revolution speed of a roller while the roller is in contact with the web. Thus, claims 1, 3 and 4 are not obvious under 35 U.S.C. § 103 (a), and withdrawal of the rejection is respectfully requested.

In Pisani, the driving rollers 39, 66 engage the fabric edge when a sensor element 38 detects that the fabric edge should be moved towards the folding frame.

When engaged, the rollers 39, 66 nip the edges of the web and control the flowing direction of the web. As shown in the circled portion of Figure 2 from Pisani below, the rollers 39, 66 are acutely angled relative to the fabric 2. Pisani, col. 5, lines 54-67. By virtue of the angle \hat{a} between the rollers 39, 66 and the fabric edge, the fabric is moved towards the frame when the rollers 39, 66 are engaged to the web. Because the rollers 39, 66 engage only edge portions of the web, they apply a large force to the web. As a result, it may be difficult to fold the web accurately at high velocities, and wrinkles may occur in the web.



Pisani does not disclose or suggest controlling the angle \hat{a} of the rollers 39, 66 while they are in contact with the web to bring the positional relationship between the edges of the web closer to a predetermined positional relationship. Nor would it be obvious to one of skill in the art to change the inclination angle of the rollers while they are in contact with the web because the purpose of the rollers 39, 66 is to return the edges of the fabric to the folding frame, and the rollers 39, 66 do not move relative to the fabric. Thus, adjusting the angle of the rollers 39, 66 would serve no purpose.

Pisani also does not disclose changing the revolution speed of the rollers 39, 66 while the rollers 39, 66 are in contact with the web.

Umebayashi and Pisani, therefore, do not teach or suggest all of the features of amended claims 1, 3 and 4. Accordingly, withdraw of the rejection of claims 1, 3 and 4 is respectfully requested.

II. NEW CLAIMS

A. New Claim 6

In the specification, "the method for 'changing the state of contact' may be changing the inclination angle of the contact section contacting the web with respect to the running direction of the web." Application, page 4, lines 1-3. The method is described as a way of changing a state of contact between the folded web and the contact section, and "the control section 3 produces control information so that the positional information is brought to the target value. The driving section 92 receives the control information. Based on the control information, the driving section 92 drives an expansion/contraction section 93 to expand/contract the expansion/contraction section 93, whereby the driving section 92 changes the orientation of the contact section 91." Application, page 14, lines 1-7 and FIG. 3.

Furthermore, "[i]t is preferred that the contact section 91 is provided between an upstream end 19 of the folding sailor (the abutting member) 1 and the guide bars (the nipping member) 51." Application, page 13, lines 18-20.

As shown in FIG. 3, "[t]he contact section 91 includes at least one roller 91. The roller 91 is revolvable on a central shaft 91c. One end of the central shaft 91c of the roller 91 is attached to a frame 94 so that the roller 91 is rotatable about the center of rotation O1 with respect to the frame 94. The other end of the central shaft 91c of the roller 91 is rotatably attached to one end O2 of the expansion/contraction section 93." Application, page 15, lines 5-11.

Also, as shown in FIG. 3, the direction of the axis of the roller 91 extends along a width direction of the web, and "[b]y expanding/contracting the expansion/contraction section 93, the orientation of the roller 91, i.e., the inclination angle (orientation) of the roller 91 as viewed from the side, changes." Application, page 15, lines 11-14.

In this structure, it could be said that "[w]hen at least one of the inclination angle (orientation) and the position of the roller 91 is altered while the roller 91 is in contact with the surface of the web W, the alteration changes the dynamic friction force between the roller 91 and the web W, thereby varying the external force acting upon the web W. Thus, it is possible to alter the path of the web W." Application, page 15 lines 16-21.

Therefore, it could also be said that "[f]or example, in a case where an upper portion 91a of the roller 91 is located downstream of a lower portion 91b thereof, the side edge W1 or W2 of the web W near the roller 91 is displaced toward the lower portion 91b so that the running direction Y of the web W is perpendicular to the axis of the roller 91. In a case where the upper portion 91a of the roller 91 is located upstream of the lower portion 91b thereof, the side edge W1 or W2 of the web W near the roller 91 is displaced toward the upper portion 91a so that the running direction Y of the web W is perpendicular to the axis of the roller 91." Application, page 16, lines 10-19.

Moreover, FIG. 4(a) and FIG. 4(c) show that the roller 91 contacting the side surfaces (W1, W2) of the web W, standing face to face to each other, changes the tension of the web W since the web W is folded in the V or U shape by the abutting member 1 and each of the opposite side edges of the web W are spaced apart from each other.

As described above, it is possible that the positional relationship of the opposite side edges of the web W will come closer to the predetermined relationship when the tension acting upon the opposite side edge portions of the web W is adjusted to correct the path of the web W.

The features of claim 6 are not shown by Pisani or Umabayashi, either alone or in combination with one another.

In Pisani, the tension of the web is controlled as a result of the roller 39, 66 contacting or not contacting with the web. Pisani does not disclose changing the inclination angle of the roller while the roller is in contact with the web. That is, Pisani does not disclose or suggest “a driving section that changes an inclination angle of the axis of the roller with respect to the running direction of the web while the roller contacts the web folded in the V or U shape, each of the opposite side edges of the web spaced apart from each other, and a control section that brings the positional relationship between the opposite side edges of the web closer to the predetermined positional relationship by changing an external force transmitted from the roller to the web and controls the drive of the driving section based on the positional information outputted from the detecting section.”

Umabayashi also does not disclose the features of claim 6. Umabayashi describes “[t]he web guider 2 slightly turns the orientation of the pair of guide rollers 4 and 4 about the vertical line V, thereby changing the angle of the guide rollers 4 and 4 with respect to the running direction of the web W, and adjusts the tension on each side edge of the web W (the tension along the web running direction) so that the web W moves along a predetermined path.” Umabayashi, [0045]. Umabayashi does not disclose “a contact section between an upstream end of an abutting member and the nipping member for contacting an inner surface and/or outer surface of the web being folded into the U or V shape.” Thus, Umabayashi also does not disclose all of the features of claim 6.

To the extent that it could be argued to combine the web guider 2 of Umabayashi between the abutting member and the nipping member of Pisani, it is noted that such a combination would not be obvious. Reference Figure A is a perspective view showing the web guider 2 of Umabayashi positioned between the abutting member and the nipping member of Pisani. Reference Figure B is a plan view showing the same arrangement.

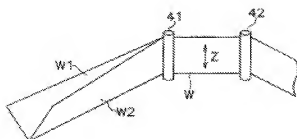


Figure A

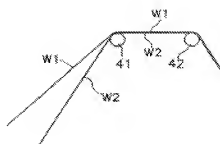


Figure B

In Umabayashi, the web guider 2 is positioned in a region bending a wide portion of the web W. So, for example, as shown in Figure B, a pair of the guide rollers 41, 42 is positioned in a region of each half (W1, W2) of the bent web W. The web W1 and W2 folded by the abutting member come nearer to each other as the web approaches the guide roller 41. The portions of the web W1 and W2 are bent together at the guide roller 41. Therefore, W1 and W2 are folded in contact with each other at the guide roller 41, 42.

In this case, when the guide rollers 41, 42 are inclined with respect to the web W, the whole web W is moved toward a vertical direction Z with respect to the running direction of the web W (see Figure A). However, a relative positional misalignment between W1 and W2 could not be corrected since the W1 and W2 contact and overlap one another, which causes the paths for W1 and W2 to move together with one another at the same time rather than independently of one another.

Moreover, Umabayashi does not disclose or suggest positioning the web guider between the abutting member and the nipping member.

Thus, even if the web guider 2 of Umabayashi is positioned in the same region of the roller of the present application, a relative positional misalign of the side edges of the web folded into V or U shape by the abutting member, spaced apart from each other, could not be corrected. For at least these reasons, new claim 6, and the claims that depend from claim 6, are patentable over the applied references.

B. New Claim 9

In the specification, "the method for 'changing the state of contact' may be changing the inclination angle of the contact section contacting the web with respect to the running direction of the web" is described as the way of changing a state of contact between the folded web and the contact section. Application, (page 4, lines 1-3.

Furthermore, "[i]t is preferred that the contact section 91 is provided between an up stream end 19 of the folding sailor (the abutting member) 1 and the guide bars (the nipping member) 51." Application, page 13, lines 18-20.

The way of changing the inclination angle of the contact section contacting the web with respect to the running direction of the web is similar to that described above with respect to claim 6. Thus, new claim 9 is patentable over the applied references for at least the same reasons discussed above, namely because taken alone or in combination with one another, Pisani and Umabayashi do not disclose or suggest all of the features of claim 9.

For at least the same reasons, the claims that depend from claims 6 and 9 are allowable.

III. DOUBLE PATENTING

Claims 4 and 5 stand rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 and 2 of U.S. Patent No. 6,913,664 in view of Pisani. U.S. Patent No. 6,913,664 is the issued patent for published U.S. Patent Application No. 2002/0174930 (Umabayashi) which was relied upon in the rejection of claims 1-5.

As described above, it would not be obvious to one of skill in the art to modify Umabayashi in light of Pisani because doing so would change the principle operation of Umabayashi. Furthermore, even in combination with one another, Umabayashi and Pisani do not disclose all of the features of the claims. Therefore, withdrawal of the

rejection on the ground of nonstatutory obviousness-type double patenting is respectfully requested.

IV. CONCLUSION

Accordingly, all claims 1-10 are believed to be allowable and the application is believed to be in condition for allowance. A prompt action to such end is earnestly solicited.

Should the Examiner feel that a telephone interview would be helpful to facilitate favorable prosecution of the above-identified application, the Examiner is invited to contact the undersigned at the telephone number provided below.

Should a petition for an extension of time be necessary for the timely reply to the outstanding Office Action (or if such a petition has been made and an additional extension is necessary), petition is hereby made and the Commissioner is authorized to charge any fees (including additional claim fees) to Deposit Account No. 18-0988.

Respectfully submitted,

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